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L6: Entry 2 of 2

File: DWPI

Dec 10, 1996

DERWENT-ACC-NO: 1997-082536

DERWENT-WEEK: 199708

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TITLE: Rolling body with lugs for farming and construction vehicles preventing adhesion of mud to tread - comprises tread surface including the lug side walls covered with low hardness elastic body layer

PATENT-ASSIGNEE:

ASSIGNEE	CODE
BRIDGESTONE CORP	BRID

PRIORITY-DATA: 1995JP-0069041 (March 28, 1995)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
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APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP 08324209A	February 6, 1996	1996JP-0020074	

INT-CL (IPC): B32 B 5/18; B60 C 11/00; B60 C 11/11

ABSTRACTED-PUB-NO: JP 08324209A

BASIC-ABSTRACT:

A rolling body has lugs (3) on the tread (2) with equal spaces in the circumferential direction. The surface of the tread (2), including at least the side walls of the lugs (3), is entirely covered with a mud sticking preventing layer made of a low hardness elastic body layer.

Also claimed is that the foregoing elastic body is made of a foam rubber with separated bubbles having an ASKAR-C hardness of 2 to 70 and specific density of 0.02 to 0.8.

ADVANTAGE - This presents a rolling body with lugs for farming or construction vehicles, which prevents bringing of mud adhered to the tread to the dry road, when the vehicle leaves wet muddy fields.

CHOSEN-DRAWING: Dwg.1/3

TITLE -TERMS: ROLL BODY LUG FARM CONSTRUCTION VEHICLE PREVENT ADHESIVE MUD TREAD
COMPRISE TREAD SURFACE LUG SIDE WALL COVER LOW HARD ELASTIC BODY LAYER

DERWENT-CLASS: A95 P73 Q11

CPI-CODES: A12-S04; A12-T01B;

ENHANCED-POLYMER-INDEXING:

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SECONDARY-ACC-NO:

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L6: Entry 1 of 2

File: JPAB

Dec 10, 1996

PUB-NO: JP408324209A

DOCUMENT-IDENTIFIER: JP 08324209 A

TITLE: TRAVELING BODY HAVING LUG

PUBN-DATE: December 10, 1996

INVENTOR-INFORMATION:

NAME	COUNTRY
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ASSIGNEE-INFORMATION:

NAME	COUNTRY
BRIDGESTONE CORP	

APPL-NO: JP08020074

APPL-DATE: February 6, 1996

INT-CL (IPC): B60 C 11/11; B32 B 5/18; B60 C 11/00

ABSTRACT:

PURPOSE: To reduce taking-out of mud to the possible minimum level when a traveling body escapes from a wet field or the like by completely covering a surface of a tread containing at least side surfaces of plural lugs arranged at intervals in the circumferential direction on the tread with a mud sticking preventive layer composed of an elastic body layer having low hardness.

CONSTITUTION: A tire 1 is provided with plural lugs 3 arranged at intervals in the circumferential direction on a tread 2. A surface of the tread 2 containing a back face and a side surface of these lugs 3, a sidewall part and a shoulder area is completely covered with a mud sticking preventive layer on which a thickness is 5 mm and an average foaming diameter is 100 μ m and ASKAR-C hardness is 30 and specific gravity is 0.5 and which is composed of a foaming rubber layer of mixed type independent foam of natural rubber and polybutadiene rubber. Since mud hardly sticks at work time in a wet field, a weak place, a muddy place or the like, taking-out of mud when a traveling body escapes from a wet field or the like can be reduced to the possible minimum level.

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審査請求 未請求 請求項の数5 OL (全5頁)

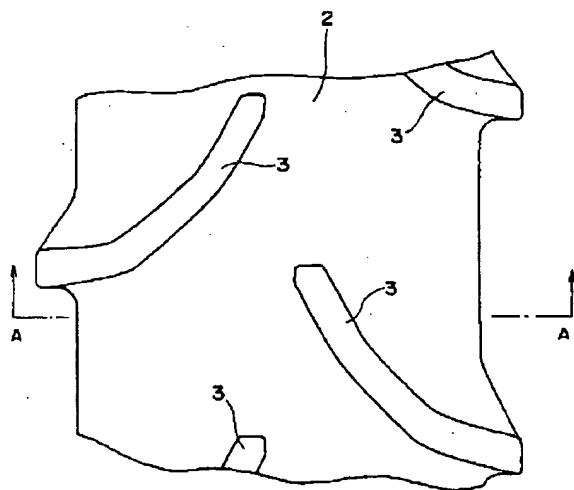
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(54)【発明の名称】 ラグ付き走行体

(57)【要約】

【課題】 タイヤおよびクローラなどのラグ付き走行体が湿田、軟弱地や泥濘地などで作業する際に泥土がトレッドの表面に付着し、湿田などから脱出するときに泥土を持ち出すものであった。

【解決手段】 本発明による農業用タイヤおよびクローラなどのラグ付き走行体は、周方向に間隔をおいてトレッド上に配置された複数のラグを備えたラグ付き走行体において、該ラグの少なくとも側面を含むトレッドの表面が低硬度の弾性体層よりなる泥付着防止層によって全面的に被覆されていることを特徴とする。また、前記弾性体層が(1)ASKAR-C硬度2乃至70、(2)比重0.02乃至0.8の独立気泡の発泡ゴム層などよりなることが好ましい。



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【特許請求の範囲】

【請求項1】周方向に間隔をおいてトレッド上に配置された複数のラグを備えたラグ付き走行体において、該ラグの少なくとも側面を含むトレッドの表面が低硬度の弾性体層よりなる泥付着防止層によって全面的に被覆されていることを特徴とするラグ付き走行体。

【請求項2】前記弾性体層が(1)ASKAR-C硬度2乃至70、(2)比重0.02乃至0.8の独立気泡の発泡ゴム層よりなることを特徴とする請求項1記載のラグ付き走行体。

【請求項3】前記独立気泡の発泡ゴム層の比重が0.1乃至0.6であることを特徴とする請求項2記載のラグ付き走行体。

【請求項4】前記弾性体層がASKAR-C硬度が2乃至70のポリノルボルネン、ジエン系ゴム又はウレタン系ゴムなどのハイ・オイル配合の軟質無発泡ゴム層によりなることを特徴とする請求項1記載のラグ付き走行体。

【請求項5】前記独立気泡の発泡ゴム層もしくは軟質無発泡ゴム層のASKAR-C硬度が5乃至50であることを特徴とする請求項1乃至4記載のラグ付き走行体。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、周方向に間隔をおいてトレッド上に配置された複数のラグを備えたラグ付き走行体に関するものであって、特に湿田、軟弱地や泥濘地等の圃場を走行する農業車両や土木建設車両などに装着される農業土木建設用タイヤおよびクローラなどのラグ付き走行体に関するものである。

【0002】

【従来の技術】湿田、軟弱地や泥濘地などの作業を終えたトラクターや田植え機などの農業車両や土木建設車両などが一般舗装路を通過するときに、これら車両に装着されて用いられる農業用タイヤまたはクローラなどのラグ付き走行体に付着した泥土を路上に撒散らしたり、また、病原に汚染された泥土を付着して別の健全な農耕地で作業をして、農作物に病気が蔓延するなどの弊害を防止するため、タイヤまたはクローラなどのラグ付き走行体への泥土の付着防止が強く要請されている。

【0003】

【発明が解決しようとする課題】従来、実開昭6-18502に開示されるように、ラグの間の多数のマッドフィンを設けて泥土の付着を防止することが提案されているが、湿潤土壤では泥土付着防止効果は発揮されない。

【0004】また、実開平6-32110に開示されているように、ラグ底に多数の溝を設けて泥土の付着を防止することや、実公昭61-23448に開示されているように、ラグ底の肉厚を薄くして泥土の付着を防止することが提案されているが、いずれも泥土を落とすに充

分な動きが得られず、泥土の付着防止効果が不足している。

【0005】本発明の目的は、湿田、軟弱地や泥濘地などの作業時に泥土が付着しにくい農業用タイヤおよびクローラなどのラグ付き走行体であって、湿田などから脱出するときに泥土の持ち出しを極力少なくしたラグ付き走行体を提供することである。

【0006】

【課題を解決するための手段】前記の目的を達成するために、本発明による農業用タイヤおよびクローラなどのラグ付き走行体は、周方向に間隔をおいてトレッド上に配置された複数のラグを備えたラグ付き走行体において、該ラグの少なくとも側面を含むトレッドの表面が低硬度の弾性体層によりなる泥付着防止層によって全面的に被覆されていることを特徴とするラグ付き走行体である。

【0007】前記目的を達成するために、本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、前記弾性体層が(1)ASKAR-C硬度を2乃至70、(2)比重を0.02乃至0.8の独立気泡の発泡ゴム層よりなることが好ましい。

【0008】前記目的を達成するために、本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、前記独立気泡の発泡ゴム層の比重が0.1乃至0.6であることがさらに好ましい。

【0009】前記目的を達成するために、本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、上記の独立気泡の発泡ゴム層よりなる泥付着防止層に替えて、ASKAR-C硬度が2乃至70のポリノルボルネン、ジエン系ゴム又はウレタン系ゴムなどのハイ・オイル配合の軟質無発泡ゴム層よりなる泥付着防止層を採用してもよい。

【0010】そして、前記目的を達成するために、本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、前記独立気泡の発泡ゴム層もしくは軟質無発泡ゴム層のASKAR-C硬度が5乃至50であることがさらに好ましい。

【0011】

【作用】本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、周方向に間隔をおいてトレッド上に配置された複数のラグを備えたラグ付き走行体において、ラグの少なくとも側面を含むトレッドの表面が低硬度の弾性体層よりなる泥付着防止層によって全面的に被覆されているので、この泥付着防止層の柔軟な弾性的変形により泥土の剥離が効果的に促進されるとともに、1枚の前記低硬度かつ弾性をもたらす層よりなるシートを加硫前の農業用タイヤのトレッド表面に張り付けるまたは2層構造の押し出しトレッドを使用することが可能であり、タイヤおよびクローラなどのラグ付き走行体の生産性に優れているので、製造コストが安価になる。

【0012】本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、比重0.02乃至0.8の独立気泡の発泡ゴム層よりなる泥付着防止層とすることができます、この発泡ゴム層が連続気泡体であると耐久性が不足するので、本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、連続気泡ではなく、独立気泡の発泡ゴム層よりなる泥付着防止層により、ラグの少なくとも側面を含むトレッドの表面を全面的に被覆している。

【0013】本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、上述のように、該ラグの少なくとも側面を含むトレッドの表面が、ASKAR-C硬度2乃至70、比重0.02乃至0.8の独立気泡の発泡ゴム層よりなる泥付着防止層によって全面的に被覆されているので、泥付着防止層の弾性変形作用によって泥土が剥がれ易くなり、ラグの間の泥土が詰まらないので、駆動力低下することはない。

【0014】上記目的を達成するために、本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、上述のように、ASKAR-C硬度が2乃至70の発泡ゴム層または軟質無発泡ゴム層よりなる泥付着防止層が採用されているが、これはASKAR-C硬度が2より小さくなると泥の重量で発泡ゴムまたは軟質無発泡ゴム層が潰れたままになり泥が付着し易くなり、一方、ASKAR-C硬度が70を超えると、発泡ゴムまたは軟質無発泡ゴム層が泥の剥がれに必要な弾性変形を生じなくなって、泥付着防止効果が低下することによる。

【0015】そして、本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、上述のように、比重が0.02乃至0.8の発泡ゴム層よりなる泥付着防止層が採用されているが、これは比重が0.02より小さくなると泥の重量で発泡ゴムが潰れたままになり泥が付着し易くなり、一方、比重が0.8を超えると発泡ゴム層が泥の剥がれに必要な弾性的変形を生じなくなって、泥付着防止効果が低下することによる。

【0016】さらに、前記独立気泡の発泡ゴム層の比重が0.1以上であると、前記潰れ程度がより緩和されるため泥がより剥れ易くなり、また、0.6以下であると、前記弾性的変形がより大きくなることで泥の剥れがより促進されるので、前記独立気泡の発泡ゴム層の比重を0.1乃至0.6とするのがさらに好ましい。

【0017】また、本発明による農業用およびクローラなどのラグ付き走行体では、前記弹性体層としてASKAR-C硬度が2乃至70のポリノルボルネン、ジエン系ゴム又はウレタン系ゴムなどのハイ・オイル配合の軟質無発泡ゴム層を採用しても前記したと同様の作用が得られる。

【0018】そして、本発明による農業用およびクローラなどのラグ付き走行体では、ASKAR-C硬度が5以上であると、前記潰れ程度がより緩和されるため、泥

がより剥れ易くなり、ASKAR-C硬度が50以下であると、前記弾性的変形がより大きくなることで泥の剥れがより促進されるので、前記独立気泡の発泡ゴム層もしくは軟質無発泡ゴム層のASKAR-C硬度が5乃至50であることが好ましい。

【0019】

【発明の実施の形態】本発明に従う農業用タイヤの実施の形態および従来のタイヤについて、図面を用いて以下に説明する。いずれも、タイヤサイズは11.2-24の農業作業用車両（トラクタ）用バイアスタイヤである。

【0020】図1は本発明の農業用タイヤ（1）のトレッド（2）の部分平面図であり、図2はA-A断面図である。

【0021】本発明の実施例のタイヤ（1）は、周方向に間隔をおいてトレッド（2）上に配置された複数のラグ（3）を備え、このラグ（3）の背面や側面およびサイドウォール部（4）やショルダ域（5）を含むトレッド（2）の表面が、厚さ5mm、平均発泡径100μm、ASKAR-C硬度30、比重0.5の天然ゴムとポリブタジエンゴムとの混合系独立気泡の発泡ゴム層よりなる泥付着防止層（6）によって全面的に被覆されている。

【0022】なお、この実施例のタイヤ（1）では、泥付着防止層によってトレッドからサイドウォール部にかけて全面的に被覆させているが、本発明による農業用タイヤおよびクローラなどのラグ付き走行体では、ラグの接地面やサイドウォール部は被覆しなくてもよい。

【0023】図3は、本発明の農業用タイヤ（1）の実施例を示す加硫前の断面図であり、トレッド（2）上に前記の天然ゴムとポリブタジエンゴムとの混合系独立気泡の発泡ゴム層よりなる泥付着防止層（6）が押出機によって一体的に積層されている。

【0024】実施例における発泡ゴム層のゴム組成は表1に示すものである。

【0025】前記の例では天然ゴムとポリブタジエンゴムとの混合系独立気泡の発泡ゴム層が用いられているが、ステレンブタジエンゴム（SBR）、イソアレンゴム（IR）、ポリブタジエンゴム（BR）、アクリロニトリルブタジエンゴム（NBR）またはエチレンポリプロピレンジエンゴム（EPDM）などのジエン系ゴムまたはウレタン系ゴムなどの独立気泡の発泡ゴム層を使用することもできる。また、独立気泡の発泡ゴム層に代えて、ASKAR-C硬度が2乃至70のポリノルボルネン、ジエン系ゴムまたはウレタン系ゴムなどのハイオイル配合の軟質無発泡ゴム層よりなる泥付着防止層を使用することができる。

【0026】また、実施例タイヤ（1）では、トレッド（2）上に天然ゴムとポリブタジエンゴムとの混合系独立気泡の発泡ゴム層よりなる泥付着防止層（6）が押出

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機によって一体的に積層されたものが使用されているが、加硫後のタイヤのトレッド表面に前記した泥付着防止層(6)を貼り付けてもよく、また、吹き付けてもよい。

【0027】従来のタイヤは、トレッド(2)の表面が前記発泡ゴム層によりなる泥付着防止層(6)によって被覆されていないこと以外は本発明の実施例のタイヤ(1)と同じである。

【0028】

【実施例】前記本発明のタイヤと従来例のタイヤについて、比較試験を行なった。試験条件は、供試タイヤをW9×24のリムに組んで、1. 2Kg/cm²の内圧を充填し、四輪駆動の25psトラクタの後輪に装着し、湿田一反分のロータリ荒おこし作業後、タイヤの表面に付着した泥土の量を重量測定し、次に畦道を30m走行した後に舗装道路を走行したときのタイヤから道路に落とされた泥土の量を重量測定した。

【0029】試験結果を、従来例のタイヤの泥土の付着量と舗装道路への落下量をそれぞれ100として、指数表示で表2に示す。

【0030】

【表1】

発泡ゴム層のゴム組成	実施例
天然ゴム	70重量部
ポリブタジエン	30重量部
カーボンブラック (ISAF)	60重量部
アロマティックオイル	15重量部
ステアリン酸	3重量部
亜鉛華	3重量部
発泡剤 (DPT) *1	20重量部
尿素	5重量部
加硫促進剤	0.6重量部
イオウ	1重量部

*1 : ジニトロソ・ベンタメチレン・テトラミン

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【0031】

【表2】

	従来例	実施例
付着量	100	14
落下量	100	14

【0032】表2の結果から、実施例のタイヤは従来例のタイヤに比べ、泥土の付着量も落下量も少ないので、優れたタイヤであることがわかる。

【0033】

【発明の効果】本発明によって、湿田、軟弱地や泥濘地などでの作業時に泥土が付着しにくいタイヤおよびクローラなどのラグ付き走行体であって、湿田などから脱出するときに泥土の持ち出しを極力少なくしたラグ付き走行体を提供することが可能となった。

【図面の簡単な説明】

【図1】本発明によるタイヤのトレッドの部分平面図である。

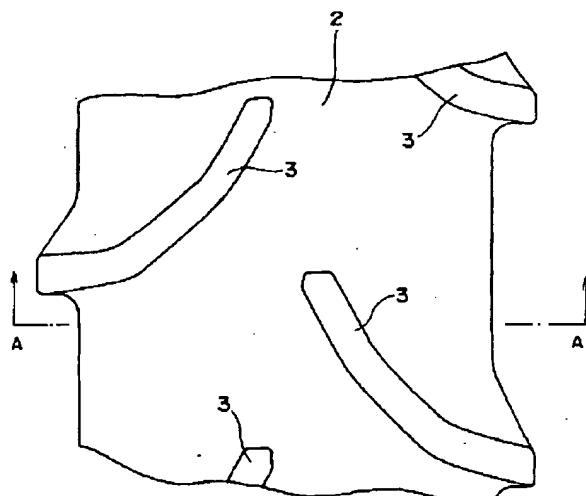
【図2】図1におけるA-A線での断面図である。

【符号の説明】

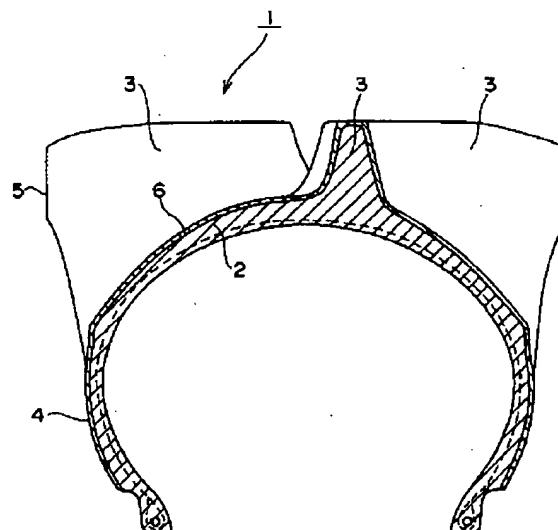
- 1 タイヤ
- 2 トレッド
- 3 ラグ
- 4 サイドウォール部
- 5 ショルダ部
- 6 泥付着防止層

30

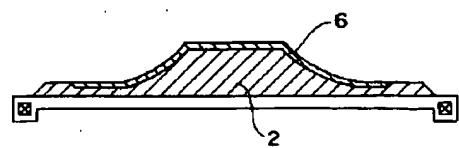
【図1】



【図2】



【図3】



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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Field of the Invention] This invention relates to transit objects with a lug, such as a tire for irrigation|drainage-and-reclamation-engineering construction with which the agricultural car which runs fields, such as a paddy field, and a weak ground, a mud ground, especially, an engineering-works construction car, etc. are equipped, and a crawler, about the transit object with a lug equipped with two or more lugs which set spacing to the hoop direction and have been arranged on a tread.

[0002]

[Description of the Prior Art] When agricultural cars, engineering-works construction cars, etc. which finished the activity in a paddy field, the weak ground, the mud ground, etc., such as a tractor and a rice planting machine, pass through a general pavement way Adhere the mud which sprinkled the mud adhering to transit objects with a lug, such as a tire for agriculture with which these cars are equipped, and which is used, or a crawler, in the road, and was polluted by pathogen, and it works in another healthy crop land. In order to prevent the evil of illness spreading in agricultural products, antisticking of the mud to transit objects with a lug, such as a tire or a crawler, is demanded strongly.

[0003]

[Problem(s) to be Solved by the Invention] Although preparing many mud lime fins between lugs, and preventing adhesion of mud is proposed so that it may be conventionally indicated by publication of unexamined utility model application Showa 60-118502, the mud antisticking effectiveness is not demonstrated in humid soil.

[0004] Moreover, although establishing many slots in a lug bottom and preventing adhesion of mud or making thickness of a lug bottom thin and preventing adhesion of mud as indicated by JP,61-23448,Y are proposed as indicated by publication of unexamined utility model application Heisei 6-32110, sufficient motion to drop mud is not obtained but all are insufficient of the antisticking effectiveness of mud.

[0005] The purposes of this invention are transit objects with a lug, such as a tire for agriculture to which mud cannot adhere easily at the time of the activity in a paddy field, the weak ground, the mud ground, etc., and a crawler, and when escaping from a paddy field etc., they are offering the transit object with a lug which lessened carrying out of mud as much as possible.

[0006]

[Means for Solving the Problem] In order to attain the aforementioned purpose, transit objects with a lug, such as a tire for agriculture by this invention and a crawler, are transit objects with a lug characterized by to be extensively covered with the mud antisticking layer which the front face of the tread of this lug which includes a side face at least becomes by the elastic body layer of a low degree of hardness in the transit object with a lug equipped with two or more lugs which set spacing to the hoop direction and have been arranged on a tread.

[0007] In order to attain said purpose, it is desirable that said elastic body layer consists 2 thru/or 70, and (2) specific gravity of a foamed rubber layer of the closed cell of 0.02 thru/or 0.8 in (1) ASKAR-C

degree of hardness with transit objects with a lug, such as a tire for agriculture by this invention and a crawler.

[0008] In order to attain said purpose, it is still more desirable that the specific gravity of the foamed rubber layer of said closed cell is 0.1 thru/or 0.6 with transit objects with a lug, such as a tire for agriculture by this invention and a crawler.

[0009] In order to attain said purpose, with transit objects with a lug, such as a tire for agriculture by this invention, and a crawler, it may change to the mud antisticking layer which consists of a foamed rubber layer of the above-mentioned closed cell, and the mud antisticking layer which an ASKAR-C degree of hardness becomes from the elasticity non-foamed rubber layer of high oil combination of 2 thru/or the poly norbornene of 70, diene system rubber, or urethane system rubber may be adopted.

[0010] And in order to attain said purpose, it is still more desirable that the ASKAR-C degrees of hardness of the foamed rubber layer of said closed cell or an elasticity non-foamed rubber layer are 5 thru/or 50 with transit objects with a lug, such as a tire for agriculture by this invention and a crawler.

[0011]

[Function] With transit objects with a lug, such as a tire for agriculture by this invention, and a crawler Since it is extensively covered with the mud antisticking layer which the front face of the tread of a lug which includes a side face at least becomes from the elastic body layer of a low degree of hardness in the transit object with a lug equipped with two or more lugs which set spacing to the hoop direction and have been arranged on a tread While exfoliation of mud is effectively promoted by flexible elastic deformation of this mud antisticking layer It is possible to use the knockout tread of two-layer structure, or it sticks on the tread front face of the tire for agriculture before vulcanizing the sheet which consists of a layer which brings about said low degree of hardness and elasticity of one sheet. Since it excels in the productivity of transit objects with a lug, such as a tire and a crawler, a manufacturing cost becomes cheap.

[0012] With transit objects with a lug, such as a tire for agriculture by this invention, and a crawler Since endurance runs short that it can consider as the mud antisticking layer which consists of specific gravity 0.02 thru/or a foamed rubber layer of the closed cell of 0.8, and this foamed rubber layer is an open cell object Transit objects with a lug, such as a tire for agriculture by this invention and a crawler, have covered extensively the front face of the tread of a lug which includes a side face at least in the mud antisticking layer which consists of a foamed rubber layer of the closed cell instead of an open cell.

[0013] Since mud becomes easy to separate according to an elastic-deformation operation of a mud antisticking layer since the front face of the tread of this lug which includes a side face at least is extensively covered with the mud antisticking layer which consists of the ASKAR-C degree of hardness 2 thru/or 70, specific gravity 0.02, or a foamed rubber layer of the closed cell of 0.8 as mentioned above, and the mud between lugs is not got blocked with transit objects with a lug, such as a tire for agriculture by this invention, and a crawler, a driving force fall is not carried out.

[0014] Although the mud antisticking layer which an ASKAR-C degree of hardness becomes from the foamed rubber layer of 2 thru/or 70 or an elasticity non-foamed rubber layer is adopted as mentioned above with transit objects with a lug, such as a tire for agriculture by this invention, and a crawler, in order to attain the above-mentioned purpose If foamed rubber or an elasticity non-foamed rubber layer remains crushed by muddy weight when the ASKAR-C degree of hardness became smaller than 2, mud becomes easy to adhere and an ASKAR-C degree of hardness exceeds 70 on the other hand, this It is because it stops producing the elastic deformation which needs foamed rubber or an elasticity non-foamed rubber layer for peeling of mud and the mud antisticking effectiveness falls.

[0015] And although the mud antisticking layer which specific gravity becomes from the foamed rubber layer of 0.02 thru/or 0.8 is adopted as mentioned above with transit objects with a lug, such as a tire for agriculture by this invention, and a crawler This is because foamed rubber remains crushed by muddy weight when specific gravity became smaller than 0.02, and mud becomes easy to adhere, it stops producing the elastic deformation which needs a foamed rubber layer for peeling of mud if specific gravity exceeds 0.8 on the other hand, and the mud antisticking effectiveness falls.

[0016] Furthermore, since said crushing extent is eased more as the specific gravity of the foamed

rubber layer of said closed cell is 0.1 or more and peeling of mud is promoted more because said elastic deformation becomes it larger that mud becomes easier to separate and is 0.6 or less, it is still more desirable to set the specific gravity of the foamed rubber layer of said closed cell to 0.1 thru/or 0.6.

[0017] Moreover, with transit objects with a lug, such as an object for agriculture by this invention, and a crawler, the operation of 2 thru/or the poly norbornene of 70, diene system rubber, or urethane system rubber same with yes, having described above, even if it adopted the elasticity non-foamed rubber layer of - oil combination is acquired for an ASKAR-C degree of hardness as said elastic body layer.

[0018] And since said crushing extent is eased more with transit objects with a lug, such as an object for agriculture by this invention, and a crawler, as an ASKAR-C degree of hardness is five or more and peeling of mud is promoted more because said elastic deformation becomes it larger that mud becomes easier to separate and an ASKAR-C degree of hardness is 50 or less, it is desirable that the ASKAR-C degrees of hardness of the foamed rubber layer of said closed cell or an elasticity non-foamed rubber layer are 5 thru/or 50.

[0019]

[Embodiment of the Invention] The gestalt and the conventional tire of the operation of the tire for agriculture according to this invention are explained below using a drawing. All of tire size are the bias tires for agricultural working-level month cars (tractor) of 11.2-24.

[0020] Drawing 1 is the part plan of the tread (2) of the tire for agriculture of this invention (1), and drawing 2 is an A-A sectional view.

[0021] The tire (1) of the example of this invention is equipped with two or more lugs (3) which set spacing to the hoop direction and have been arranged on a tread (2). The front face of a tread (2) including a tooth back, a side face, and the sidewall section (4) and the shoulder region (5) of this lug (3) 5mm in thickness, 100 micrometers of diameters of average foaming. It is extensively covered with the mud antisticking layer (6) which consists of a foamed rubber layer of the mixed stock closed cell of the natural rubber of the ASKAR-C degree of hardness 30 and specific gravity 0.5, and polybutadiene rubber.

[0022] In addition, although it applies to the side WORU section and the mud antisticking layer is made to cover with the tire (1) of this example extensively from a tread, the ground plane or the sidewall section of a lug do not need to cover with transit objects with a lug, such as a tire for agriculture by this invention, and a crawler.

[0023] The laminating of the mud antisticking layer (6) which drawing 3 is a sectional view before the vulcanization which shows the example of the tire for agriculture of this invention (1), and consists of a foamed rubber layer of the mixed stock closed cell of the aforementioned natural rubber and polybutadiene rubber on a tread (2) is carried out in one by the extruder.

[0024] The rubber presentation of the foamed rubber layer in an example is shown in Table 1.

[0025] Although the foamed rubber layer of the mixed stock closed cell of natural rubber and polybutadiene rubber is used in the aforementioned example, the foamed rubber layer of closed cells, such as diene system rubber, such as styrene butadiene rubber (SBR), polyisoprene rubber (IR), polybutadiene rubber (BR), acrylonitrile-butadiene rubber (NBR), or ethylene polypropylene diene rubber (EPDM), or urethane system rubber, can also be used. Moreover, it can replace with the foamed rubber layer of a closed cell, and the mud antisticking layer which an ASKAR-C degree of hardness becomes from the elasticity non-foamed rubber layer of high oil combination of 2 thru/or the poly norbornene of 70, diene system rubber, or urethane system rubber can be used.

[0026] Moreover, although that to which the laminating of the mud antisticking layer (6) which consists of a foamed rubber layer of the mixed stock closed cell of natural rubber and polybutadiene rubber was carried out in one by the extruder is used on the tread (2) with the example tire (1), the mud antisticking layer (6) described above on the tread front face of the tire after vulcanization may be stuck, and you may spray.

[0027] The conventional tire is the same as the tire (1) of the example of this invention except not being covered with the mud antisticking layer (6) which the front face of a tread (2) becomes by said foamed rubber layer.

[0028]

[Example] The comparative study was performed about the tire of said this invention, and the tire of the conventional example. The test condition constructed the sample offering tire to the rim of W9x24, was filled up with 1.2kg /of internal pressure of 2 cm, equipped the rear wheel of 25ps tractor of a four-wheel drive with it, carried out the gravimetry of the amount of the mud adhering to the front face of a tire after the rotary roughness revitalization activity of an anti-part [paddy field / 1], and after it ran the footpath 30m next, it carried out the gravimetry of the amount of the mud dropped to the road from the tire when running pavement.

[0029] A test result is shown in Table 2 by characteristic display, using the coating weight of the mud of the tire of the conventional example, and the deposit to pavement as 100, respectively.

[0030]

[Table 1]

発泡ゴム層のゴム組成	実施例
天然ゴム	70 重量部
ポリブタジエン	30 重量部
カーボンブラック (I S A F)	60 重量部
アロマティックオイル	15 重量部
ステアリン酸	3 重量部
亜鉛華	3 重量部
発泡剤 (D P T) * 1	20 重量部
尿素	5 重量部
加硫促進剤	0.6 重量部
イオウ	1 重量部

* 1 : ジニトロソ・ペンタメチレン・テトラミン

[0031]

[Table 2]

	従来例	実施例
付着量	100	14
落下量	100	14

[0032] The result of Table 2 shows that the tire of an example is an outstanding tire also with few the coating weight of mud and deposits compared with the tire of the conventional example.

[0033]

[Effect of the Invention] It became possible to offer the transit object with a lug which were transit objects with a lug, such as a tire to which mud cannot adhere easily at the time of the activity in a paddy field, the weak ground, the mud ground, etc., and a crawler, and lessened carrying out of mud as much as possible by this invention when escaping from a paddy field etc.

[Translation done.]

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CLAIMS

[Claim(s)]

[Claim 1] The transit object with a lug characterized by being extensively covered with the mud antisticking layer which the front face of the tread of this lug which includes a side face at least becomes from the elastic body layer of a low degree of hardness in the transit object with a lug equipped with two or more lugs which set spacing to the hoop direction and have been arranged on a tread.

[Claim 2] The transit object with a lug according to claim 1 characterized by said elastic body layer consisting of the (1) ASKAR-C degree of hardness 2 thru/or 70, (2) specific gravity 0.02, or a foamed rubber layer of the closed cell of 0.8.

[Claim 3] The transit object with a lug according to claim 2 characterized by the specific gravity of the foamed rubber layer of said closed cell being 0.1 thru/or 0.6.

[Claim 4] The transit object with a lug according to claim 1 with which said elastic body layer is characterized by an ASKAR-C degree of hardness consisting of an elasticity non-foamed rubber layer of high oil combination of 2 thru/or the poly norbornene of 70, diene system rubber, or urethane system rubber.

[Claim 5] The transit object with a lug according to claim 1 to 4 characterized by the ASKAR-C degrees of hardness of the foamed rubber layer of said closed cell or an elasticity non-foamed rubber layer being 5 thru/or 50.

[Translation done.]